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April 3, 2020

NJPDES Permits NJ0001511
NJPID #46318 & NJ0026671
NJPID #46322 Report Response

U. S. Environmental Protection Agency, Region 2
Enforcement and Compliance Assurance Division
290 Broadway, 21st Floor
New York, NY 10007
Attn: Justine Modigliani, P.E., Chief, CWA Compliance Section

New Jersey Department of Environmental Protection
Division of Water and Land Use Enforcement
Mail Code 44-04B
401 East State Street - PO Box 420
Trenton, NJ 08625-0420
Attn: Richard T. Paull, Director

Dear Mr. Modigliani and Mr. Paull:

On February 24, 2020, we received an electronic version of your Compliance Evaluation Inspection report (CEI Report) dated February 24, 2020 for NJPDES Permit Nos. NJ0001511 and NJ0026671, Program Interest ID Nos. 46318 and 46322, respectively. The CEI Report contains Potential Non-Compliance (PNC) items, Areas of Concern (AOC), and other observations requiring responses. As noted by USEPA, NJDEP was a participant in the CEI and some of the items requiring response by USEPA are similar to those included in NJDEP's CEI reports to which Bayway has already responded to NJDEP with copies sent to USEPA. As directed by USEPA, where there is overlap between NJDEP's and USEPA's CEI reports, Bayway's response to USEPA will reference the applicable sections of the response to NJDEP instead of repeating the entire response to NJDEP. Attached to this letter are Bayway's responses to USEPA, the two response letters to NJDEP's CEI reports (one for each permit), and a summary of action items and schedule addressing each PNC and AOC.

Please note that the planned activities and schedules in our responses were based on normal operations within our control. Due to the continually evolving coronavirus pandemic response, it is now very likely delays will occur to at least some of the remaining action items for time periods that can not be predicted due to factors that can develop beyond our control.

We thank NJDEP and USEPA for their efforts to enhance Bayway's NJPDES compliance programs. Please contact George Bakun at george.bakun@p66.com or (908) 523-5896 if you have any questions regarding the responses or require additional information.

Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for purposely, knowingly, recklessly, or negligently submitting false information.

Hope Gray

Hope Gray
Bayway Refinery HSE Manager

c: New Jersey Department of Environmental Protection
Central Bureau of Water Compliance and Enforcement
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401 East State Street
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Bayway Refinery
February 24, 2020 Compliance Evaluation Inspection (CEI) Report
NJPDES Permit Nos. NJ0001511 (PID #46318) & NJ0026671 (PID #46322)

Responses to USEPA Areas of Concern (AOCs) and Potential Non-Compliance Items (PNC) are addressed in accordance with the numbering system used in USEPA's inspection report. Portions of USEPA's inspection report comments are repeated or summarized to provide some reference to the USEPA item requiring response. As instructed in USEPA's cover letter, for AOCs and PNCs that Bayway has already responded to in its response to NJDEP, rather than repeating the response Bayway has attached the NJDEP response letter for the relevant permit and just references the applicable portions of the attached NJDEP response letter that also pertain to the USEPA comment. Following are the attached NJDEP response letters:

- Attachment 1: P66 response to NJDEP comments on NJPDES Permit No. NJ0001511
- Attachment 2: P66 response to NJDEP comments on NJPDES Permit No. NJ0026671
- Attachment 3: P66 response to NJDEP comments on NJPDES Permit No. NJ0105104

Further in accordance with USEPA's requirement for a schedule for actions that are being taken or will be taken to address each PNC Item or AOC, we have summarized the actions and planned schedule discussed in the following written responses in Table 1.

II. Findings & Observations – NJ0001511

A. Outfall Observations

Line No. 2, Outfall 001 AOC: "Oil and grease under 40 CFR Part 136/EPA Method 1664 must be sampled directly into the glass sample jar and not transferred. (AOC)"

Response: We reviewed our procedure for collecting samples at the Dam 1 outfall (DSN 001A) and the Arthur Kill intake at our Salt Water Pump Station and the procedure already included the requirement to fill the grab samples directly, per the following excerpted steps:

1. A sample cage with a new clean one quart wide mouth glass jar must be used for each sample.
2. When taking the sample, steps must be taken to avoid scraping any foreign material into the sample jar.
3. The sample must remain in the original sample jar and not transferred to an additional container.

In response, supervisors were advised to remind operators collecting grab samples for petroleum hydrocarbons that the samples have to be collected directly into the lab supplied sample bottles.

As discussed during the inspection, we do however believe that samples transferred from a sample collection bottle were still representative of our discharge. Our standard practice is to fill three sample bottles for each Petroleum Hydrocarbon sampling event, with one sample to be analyzed, one retained, and one used to check pH of the acid preserved sample. If oil film were present that could cling to the sample collection bottle, at some point in time some of the clinging oil would pass into one or more of the three sample bottles and be analyzed. The consistency of our analysis results and the lack of a visible sheen in the discharge indicates that

has not occurred. Our data supports that the sample results are representative if there is no visible oil film or sheen. As records also indicate, if and when an oil film or sheen is present at the intake or discharge, Bayway reports the visible sheen to the appropriate authorities.

Line No. 3, Outfall 005 and Polypropylene Plant PNC: Items listed as part of the PNC include:

A. Polypropylene in boomed area and on ground and in the water around Outfall 005
B. PP Pellets were seen discharging from the separator. Improvements are needed to prevent PP pellet discharge.
C. PP Pellets are blown out of baghouse dumpster and were seen accumulated in parts of the PP area.

Response: The USEPA PNC issues stated above were previously addressed in response to NJDEP comments found within the following attachments:

- Attachment 1: Response to Deficiency #1 which improved pellet separator effectiveness through:
    - Removal of pellet separator air supply system installed to facilitate skimming (completed)
    - Installation of a cover over pellet separator outlet (completed)
    - Removal of buildup on separator outlet walls and baffle (completed)
    - Oversight by N licensed operator (ongoing since February)
- Attachment 1: Response to NOV Corrective Actions #1 & 2, which included an O&M Manual for the pellet separator to NJDEP for review, and explained why rerouting the pellet separator discharge to the WWTP could be more adverse environmentally
- Attachment 2: Response to Deficiency #5 (and #11) which resulted in trial use of custom in-use cover for roll-off receiving baghouse exhaust discharge, with consideration for possible curtain walls.

In addition to the above, since the response to NJDEP, Bayway has also purchased a manually operated vacuum for use by operators and/or contractors to address small resin releases, when needed. The use of vacuum trucks and sweeping will also continue when appropriate.

The above responses address the PNC issues, which do not address USEPA's Line No. 3, Comment e. which refers to an "open tote with waste material in it" stating "waste containers should be kept covered to avoid stormwater contamination." To complete our response, please note that this plastic crate was removed in 2019.

Line No. 4 Outfall 004 AOC: Requirement for BMPs during and after Clam-Trol application at Poly Ditch outfall.

Response: This USEPA AOC was previously addressed in response to NJDEP comments that are included in the Attachment 1 Response to Deficiency #2, which described the addition of BMPs to Bayway's SPP Plan addressing containment and recovery of floating material. Bayway further reviewed NJDEP and USEPA comments with the water treatment contractor responsible for the biocide application and added the need to plan for vacuum trucks for scum control during biocide application to the biocide application procedure.

B. Areas of Concern (NJ0001511)

Finding/Area of Concern 1.: Provide current operational status of each of the API separators.

Response: The API separator sludge removal work that was ongoing during the inspection was completed last year and all API Separator channels were returned to service. As USEPA and NJDEP were informed, API sludge removal at the Bayway refinery is routine planned maintenance that requires channels to be taken out of service in a phased approach so they can be cleaned and maintained (for maintenance that requires entry into the channels) before being returned to service. We are currently planning this year's sludge removal. We do not know why this is listed as a Finding or Area of Concern since the USEPA and NJDEP observed routine planned maintenance being conducted, indicating that we were operating and maintaining the API Separators properly.

Finding/Area of Concern 2.: Provide the status of the tanks 132 and 133 dike valve and the status of flow in the process sewer. Additionally, clean up/removal of oil in the tank dike was needed.

Response: This USEPA AOC was previously addressed in response to NJDEP comments that are included in Attachment 1: Response to Deficiency #3.a. The response stated that the area was cleaned, and this was verified by NJDEP during a subsequent site visit. The response also addressed the plans to install the containment valve. There has been no recurrence of oil from the process sewer since the area was cleaned. The projected completion date for this work is now third quarter 2020 due to reductions in onsite manning made in accordance with NJ Governor Phil Murphy's Executive Order No. 107, which requires essential businesses remaining open during the coronavirus pandemic to "make best efforts to reduce staff on site to the minimal number necessary to ensure that essential operations can continue".

Finding/Area of Concern 3.a.: There is an array of temporary piping for returning RAS and dead zone flow in Bi-Ox lagoons.

Response: USEPA and NJDEP observed numerous pumps and associated hose/pipe that were required to properly operate and maintain the WWTP while significant capital upgrade work on the aeration and RAS systems was ongoing to ensure the sustainability of the WWTP going forward. We understand the unsightliness of the temporary facilities, but Bayway believes that it has been operating the WWTP diligently throughout the capital upgrade of the aeration and RAS systems. As such we are uncertain why this is listed as a Finding or Area of Concern. As was discussed with USEPA and NJDEP during the inspection, some unforeseeable issues arose during both the aerator and RAS capital upgrade work that extended the time that portable equipment was needed until the issues could be resolved. Bayway continues to work the issues to completion (status of work is addressed in ensuing responses to USEPA items II.B.3.d and 3.f) to ensure effective long-term operation, despite considerable expense. We do note that some of the portable pumps and hose/pipe have been removed. However, the timing for removal of the remaining pumps and hose/pipe remains contingent upon completion of the aerator and RAS capital upgrade work.

Finding/Area of Concern 3.b.: The eroded section of the lagoon dike must be stabilized and permanent/structurally sound piping should be installed for the RAS and other lines used to operate the Bi-Ox Lagoons. Describe any plans/schedules for installing and using permanent RAS lines.

Response: As was discussed during the USEPA and NJDEP inspection, the erosion at the south end of the Biox embankment occurred during the installation of the temporary hoses and pipes needed to complete the RAS capital upgrade project. This work is nearing an end and some of the hoses and pipes have been removed, but some will still remain until the capital upgrade work is completed later this year. As was discussed with USEPA and NJDEP during the inspection, the erosion cannot be adequately addressed until the overlying hoses and pipes are removed. We note though that the erosion was localized, and the eroded soil/stone was contained at the toe of the embankment with no offsite runoff. The erosion also did not pose any instability issues. The Biox basin construction includes a one foot thick concrete wall around its perimeter with a ten foot wide adjacent clay core that also supports the perimeter road, with the embankment starting at the edge of the perimeter road.

Pertaining to the comments about permanent RAS piping, the WWTP has a permanent RAS pipe that was not in use during the RAS capital upgrade project because the line had to be taken out of service for the RAS capital upgrade work to be completed. The project includes a new pipe header to transfer flow from the new RAS pumps to the existing permanent RAS pipe. With the completion of the RAS piping and pump upgrades, the permanent RAS pipe has been returned to service as of January with no issues as discussed further in the response to USEPA item II.B.3.d below. There is no additional follow-up required for this item.

Finding/Area of Concern 3.c.: Floating solids and foam in Bi-Ox and Bi-Ox outlet box.

Response: The foam within the biological oxidation (Bi-Ox) basins is an artifact of the aggressive aeration system and the turbulence it creates in combination with surfactants present in the intake water, which is comprised on average of brackish water from the Arthur Kill. The Arthur Kill is known to be a source of both natural and manmade surfactants. However, foam in activated sludge systems is not new and Bayway's WWTP is designed to manage the foam so as to stay in compliance despite the foam. USEPA and NJDEP witnessed the WWTP effluent the same day that the Bi-Ox foam was observed and the effluent was clear with no scum or foam present. Facilities Bayway has in place to manage the foam include underflow baffles in the Bi-Ox, water sprays and skimmers on the clarifiers, and the tertiary filters. The effectiveness of the Bi-Ox underflow baffles is demonstrated in USEPA's photo 787 which shows a mostly foam covered Bi-Ox with just a little dispersed scum on the outlet side of the underflow baffle. No action is planned in response to this Finding/Area of Concern other than to continue to maintain the systems that are in place and proven to effectively manage the foam that is largely contained within the Bi-Ox.

Finding/Area of Concern 3.d.: Explain status and schedule for getting the electric RAS pumps operating.

Response: The new pumps have been operating since January 2020, and work continues finalizing several aspects of the overall RAS pumping system before formal turnover from the construction team to the WWTP. As a result, some portable pumps and their associated hoses and pipes remain onsite in case they are needed until all work is considered complete (*e.g.*, in case we have to temporarily shutdown the permanent pumps to complete some work).

Bayway has spent considerable expense upgrading the RAS system and working to resolve unforeseeable issues. Bayway believes that it has been operating diligently throughout the RAS system capital improvement process by maintaining and operating back-up facilities, despite considerable expense, to ensure proper operation and maintenance of the WWTP and a sustainable RAS operation while maintaining compliance throughout the upgrade process.

The completion date for this work is now projected to be third quarter 2020. This timing is based on reductions in onsite manning made in accordance with NJ Governor Phil Murphy's Executive Order No. 107, which requires essential businesses remaining open during the coronavirus pandemic to "make best efforts to reduce staff on site to the minimal number necessary to ensure that essential operations can continue". Once this work is complete, portable pumps and associated hoses and pipes at the RAS pump station will be removed.

Finding/Area of Concern 3.e.: East Bi-Ox Dissolved Oxygen (D.O.) meter read 0.0, believed to be due to faulty D.O. probe.

Response: Bayway has four DO probes monitoring the Bi-Ox operation, one in each basin and one at the outlet side of the foam containment baffle in each basin. It is well accepted that activated sludge systems are a difficult environment for analyzers, especially when foam is present that can foul the DO membrane making reliability worse. USEPA is correct in that the East DO probe was not reading reliably during the inspection. This was known and as such it was not being relied upon to control the WWTP operation. As USEPA is also aware, the DO probe within the West Basin and both outlet DO probes were reading reliably with acceptable residual DO levels providing effective control of the Bi-Ox system. The East DO probe was addressed and returned to service, and reliability of the East DO probe was also subsequently improved by lowering the probe into the water further below the foam layer. We also note that the permit does not require monitoring or reporting of DO. As a result, no further action is planned in response to this Finding/Area of Concern at this time.

Finding/Area of Concern 3.f.: Explain the status of the aerator upgrades.

Response: As USEPA knows, Bayway replaced twenty 100 horsepower platform-mounted mechanical surface aerators with twenty 100 horsepower floating surface aerators. This was done with the vendor's review and input on the number and spacing of the new floating aerators. The new aerators immediately increased DO levels because of increased aeration capacity, but unforeseeably were not as effective keeping the activated sludge in suspension. Bayway started using two portable pumps and hoses/pipes to address the mixing issue temporarily to allow proper operation and maintenance of the WWTP while working on a permanent solution. Despite working with the vendor on alternate spacing options, the mixing issue remained. This in turn led to completion of a flow simulation model of the floating aerator system to identify an acceptable sustainable solution. The flow simulation model demonstrated that the replacement of four floating aerators with four submersed mixers equipped with blowers (two in each basin) would maintain the aeration capacity while providing the required mixing energy that will allow the portable pumps and hoses/pipes to be removed. As stated in a previous response, the Arthur Kill represents a significant portion of the WWTP inflow, which makes the Bi-Ox brackish enough to require upgraded metallurgy. The required metallurgy is not standard and led to the need for custom-made submersed mixers, extending the time for delivery. As of this point, the mixers have been received and work has started for their installation.

As with the RAS upgrade project, Bayway has spent considerable expense upgrading the aeration system and working to resolve unforeseeable issues. Bayway believes that it has been operating diligently throughout the aeration upgrade process by maintaining and operating back-up facilities, at considerable expense, to ensure proper operation and maintenance of the WWTP and a sustainable Bi-Ox operation while maintaining compliance throughout the upgrade process.

Also as with the RAS upgrade project, the completion date for this work is now projected to be third quarter 2020 based on reductions in onsite manning made in accordance with NJ Governor Phil Murphy's Executive Order No. 107, which requires essential businesses remaining open during the coronavirus pandemic to "make best efforts to reduce staff on site to the minimal number necessary to ensure that essential operations can continue". Once this work is complete, we expect to also be able to remove the two portable pumps and associated hoses/pipes.

Finding/Area of Concern 4.a.: Missing weir plate in Clarifier No. 1 must be replaced to avoid short circuiting.

Response: The short circuiting through the missing weir plate in Clarifier No. 1 was corrected temporarily by installing a solid plate across the opening. Permanent repair or replacement of the weir plate will be completed when the clarifier is removed from service for a full turnaround. Short circuiting has been stopped and clarifier is operating properly. As such, no additional action is planned in response to this Finding/Area of Concern at this time.

Finding/Area of Concern 4.b.: Explain the current operational status of the clarifiers.

Response: Clarifier No. 3 turnaround was completed, and the clarifier was returned to service in 2019. Currently all three clarifiers remain in service with no immediate plans to take another clarifier out of service this year. We note that the WWTP is designed to operate with two clarifiers, allowing one clarifier to be removed from service for maintenance, and has operated successfully within permit compliance with two clarifiers for extended periods while a clarifier was out of service for repair or maintenance. Similar to our response to USEPA Item II.B.1. regarding the API Separators, we do not know why this is listed as a Finding or Area of Concern since the USEPA and NJDEP observed planned maintenance being conducted, indicating that we were operating and maintaining the clarifiers properly.

Finding/Area of Concern 5.a.: Explain the current operational status of the 6 filters.

Response: At the time of the inspection, one filter was removed from service for planned maintenance and another filter was removed from service temporarily awaiting a part needed for repair. All filters were returned to service in 2019. Since then another filter has been removed from service for planned maintenance in 2020, leaving five filters in service when needed. Throughout this period there have been no bypasses of the tertiary filters. The facility can manage the 15 MGD design flow with five filters and can effectively run four filters at typically lower flows. No additional response is planned to this Finding/Area of Concern other than to complete the planned maintenance on the out of service filter this year. Similar to our response to USEPA Items II.B.1 and II.B.4.b regarding the API Separators and clarifiers, respectively, we do not know why this is listed as a Finding or Area of Concern since the USEPA and NJDEP observed planned maintenance being conducted, indicating that we continue to operate and maintain the filters properly.

Finding/Area of Concern 5.b.: There is a broken water line inside the filter building.

Response: As USEPA and NJDEP were advised during the inspection, the water supply line was broken on the water supplier's side (American Water Company) of the flow meter. As a result, Bayway could not repair the water line. American Water Company was notified after the line broke and had been onsite prior to NJDEP and USEPA's inspection to assess the damage.

American Water Company then returned after the inspection to repair the line in 2019. No further action is required for this Finding/Area of Concern.

Finding/Area of Concern 5.c.: Provide the status of the tertiary filter gate valve replacement.

Response: As NJDEP and USEPA were advised, Bayway was planning a trial using butterfly valves in place of gate valves due to issues with the gate valves that the gate valve manufacturer has not been able to resolve for our application. The trial was completed, and the valve is working well without leakage. As a result, we continued to replace gate valves with butterfly valves as the need arose. To date, four butterfly valves have been installed and they have all been working well. As such, we are continuing with replacing gate valves with butterfly valves as valve replacement becomes necessary or an opportunity arises, with four more butterfly valves currently onsite. Please note that some valve replacements may require shutdown of the filter operation to allow safe valve replacement. In the event of a filter bypass, Bayway notifies NJDEP and monitors the WWTP effluent TSS throughout the filter bypass period.

Finding/Area of Concern 6.: 6. There are unstabilized soils adjacent to the Creek.

Response: As USEPA and NJDEP were advised during the inspection, the area observed with "unstabilized soils" adjacent to the onsite freshwater reservoirs is located within a regulated flood zone. Even though the area was stone covered at one point, our land use permitting consultant advised that with time the stone has become incorporated in the soil below and the addition of more stone requires a NJDEP Individual Flood Hazard Area Permit. Bayway has authorized our consultant to prepare an application to cover the bare earth area with stone stabilization cover suitable for personnel access. The application preparation will take about a month, and then NJDEP has 90 days to act on a complete application, with no guarantee that the application will be considered complete or the proposed work will be approved without NJDEP requesting revisions which can extend the process. Once a permit is issued, the work can be planned and implemented within two months. Thus, at best, this process is expected to take 6 months with a year-end completion date possible.

Finding/Area of Concern 7.a.: Foaming at intake screen during Clam-Trol application. BMPs required to collect and remove material at Outfall 004 during and after Clam-Trol application.

Response: This USEPA AOC was previously partly addressed in response to NJDEP comments that are included in Attachment 1: Response to Deficiency #2, similarly to the prior response to USEPA item II.A. Line No. 4. The response stated that BMPs were added to Bayway's SPP Plan pertaining to the containment and recovery of floating material and also that the need to plan for vacuum trucks during and after biocide application was added to the biocide application procedure. Regarding the observation of foaming at an intake screen, please note that the biocide application procedure specifically identifies actions that must be taken (or avoided) to ensure there is no inadvertent release of the biocide during injection at the Salt Water Pump Station. The effectiveness of this procedure was verified with the observation of no foaming outside the Salt Water Pump Station in the Arthur Kill during biocide application.

Finding/Area of Concern 7.b.: Approved method requires that oil and grease samples be collected directly into the sampling container.

Response: This Finding/Area of Concern was previously addressed in the response to USEPA item II.A. Line No. 2 AOC. Repeating Bayway's action, supervisors were advised to remind

operators collecting grab samples for petroleum hydrocarbons that the samples have to be collected directly into the lab supplied sample bottles.

Finding/Area of Concern 7.c.: The permit did not address the Clean Water Act Section 316 (b) impingement and entrainment requirements or the recommendations and conclusions of the Impingement Alternatives Analysis (IAA) study submitted to NJDEP. Confirm status of Section 316(b) implementation.

Response: USEPA's concluding statement "The Facility Representative said that the Section 316(b) requirements would be addressed in a Permit Renewal" is correct. In accordance with the current permit that expired but remains in effect, Bayway was required to submit the IAA that was provided to USEPA for review. The permit included the IAA requirement because the USEPA rule was not yet in effect for existing facilities at the time of the last permit renewal, and the USEPA cooling water rule requirements could not be anticipated because of extensive challenges to the proposed rule from many organizations and perspectives. To meet the permit required due date for the IAA, the IAA work was initiated before the finalized USEPA rule was issued. The IAA was then submitted to NJDEP in accordance with the permit which was not required to be modified with the submittal of the IAA because of the requirements included in the finalized USEPA rule. For Bayway, the finalized USEPA cooling water intake rule established requirements for permit renewal application and impingement/entrainment performance standard implementation based on the next permit renewal application due date. Based on the NJPDES NJ0001511 expiration date, Bayway was required by the finalized USEPA rule to submit the cooling water intake rule application requirements with its next permit renewal application, which Bayway did on February 23, 2018. NJDEP advised that the permit application was administratively complete in a March 6, 2018 letter allowing the existing permit to remain in effect after the permit expiration date of September 30, 2018. The IAA was not implemented because the Bayway once through cooling water AIF (Actual Intake Flow) is greater than 125 MGD and for an AIF greater than 125 MGD, the USEPA rule requires review of entrainment requirements before implementing impingement requirements. Thus, NJDEP could not implement the IAA after the USEPA rule was finalized without first addressing entrainment requirements, and entrainment requirements could not be addressed without first receiving the permit renewal application. As a result, entrainment and impingement requirements could not be addressed via a permit modification by NJDEP prior to the permit renewal process starting based on timing requirements established by the final USEPA rule.

Finding/Area of Concern 7.d.: Verify that BPC 68940 is similar to Clam-Trol or other approved biocide.

Response: Bayway forwarded the USEPA's comment to its current water treatment vendor who confirmed that the CAS numbers for ingredients included in the Safety Data Sheets for the Clam-Trol and the BPC 68940 products are the same.

Finding/Area of Concern 7.e.: Debris in open container outside the Salt Water Pump Station needs to be disposed of properly.

Response: The material shown in USEPA's photograph was removed, but we want to clarify that the "open container" on the pallet was not actually a container but rather a part used at the Salt Water Pump Station. The packaging material within and under the part, however was damaged and was disposed of properly.

Finding/Area of Concern 8.a.: Sewer overflow at ISOM unit must remain in sewer.

Response: Review of the foam-over location and associated sewer drawings after the site visit confirmed that the sewer box that was foaming over was a condenser sewer, and flow from the foam-over was splitting to an adjacent process sewer and back into the same condenser sewer further down in the sewer. The foam was a result of turbulence caused when the cooling water flow enters that condenser sewer combined with residual from the ongoing biocide application. The foam was breaking down to water and scum and this was part of the source of the scum observed contained within the spill boom at DSN 004A, previously addressed in response to USEPA II.A. Line No. 4 AOC and USEPA II.B.7.a. As discussed in those responses, the scum was contained and recovered at the spill boom in Poly Ditch upstream of the Poly Ditch discharge into Morses Creek. As explained, Bayway has implemented changes to the biocide procedures to ensure containment and recovery of floating material resulting from the biocide application.

Finding/Area of Concern 8.b.: Diesel pump set up on Infineum's process sewer to control sewer overflows; sewers must be maintained to ensure that they are flowing properly and process wastewater discharges to the sewer must be controlled to avoid sewer overflows.

Response: This USEPA Finding/Area of Concern was previously addressed in response to NJDEP comments found in Attachment 1: Response to Deficiency # 3.d. Note that USEPA's reference to this as an Infineum process sewer is not correct and the purpose of the diesel pump is not to control the process sewer level. Rather, as discussed in the referenced NJDEP response, the area where the pump is located is a low point within the refinery property due to the access culvert that passes underneath the elevated railroad tracks. The culvert receives stormwater runoff overland that must be pumped into the refinery process sewer to prevent ponding that inhibits access under the railroad tracks. The refinery process sewer at this location also receives stormwater through sewers from both the refinery and Infineum facilities. The response includes operating a portable pump to control ponding when needed until a permanent pump is installed later this year.

The completion date for this work is projected to be third quarter 2020 based on reductions in onsite manning made in accordance with NJ Governor Phil Murphy's Executive Order No. 107, which requires essential businesses remaining open during the coronavirus pandemic to "make best efforts to reduce staff on site to the minimal number necessary to ensure that essential operations can continue". Once this work is complete, the portable pump and associated hoses/pipes will be removed.

Finding/Area of Concern 8.c.: Verify source of flow near diesel pump discussed in USEPA Finding/Area of Concern II.B.8.b.

Response: The source of flow was stormwater runoff. As explained in the response to USEPA item II.B.8.b above, the diesel pump is used to pump stormwater from the access culvert that passes under the elevated railroad tracks. The culvert allows operators direct access to the Greater Elizabeth Tankfield on the other side of the elevated tracks. The railroad tracks are elevated with berms on either side in the area of the culvert. Rain runs down the berms to a trench at the bottom of the berms. The trenches slope towards the culvert. This overland runoff is the primary source of the runoff. The trench for the area observed by USEPA also receives some roof drainage from an Infineum shed that is directed by roof drains to the trench and there is some nominal additional runoff from the edge of a section of paved personal car parking that is otherwise directed into Infineum property. The trench runoff flows to and ponds in a vegetated area behind the concrete wall that forms one side of the culvert, allowing runoff to continue to trickle into the culvert slowly after rain passes. This is a small part of the stormwater flow into the culvert that must be pumped out to keep the culvert passable.

Finding/Area of Concern 9.a, 9.b, 9.g, 9.h, 9.i & 9.j.: Analysis must be conducted in accordance with 40 CFR 136 unless other test procedures have been approved by NJDEP in writing or as otherwise specified in the Permit. The contracted laboratory did not use an approved 40 CFR 136 method for analysis of DSN 002A, 003A, 004A and/or 005A samples for the following parameters:

9.a: Hexavalent Chromium
9.b.: Mercury
9.g.: Bis (2-ethylhexyl) phthalate
9.h.: Semi-volatiles
9.i.: Pesticides such as malathion, chlorpyrifos and Guthion
9.j.: Mirex

Response: This response applies to each of the above Findings/Area of Concerns pertaining to use of 40 CFR 136 methods for sample analysis. Bayway was unaware that some analyses by the contracted laboratory were not being conducted using 40 CFR 136 methods and forwarded USEPA's Findings/Areas of Concern to the contracted laboratory for response. The contracted laboratory replied that USEPA was correct for the above parameters but did not explain why. In response to this, Bayway reviewed and identified the following:

- The bid specification for the contracted laboratory work required work to be done in accordance with N.J.A.C. 7:18 (Regulations Governing The Certification Of Laboratories And Environmental Measurements), 40 CFR 136 and NJDEP requirements.

- The bid specification included NJPDES analysis requirements, but the contracted laboratory's bid did not specifically identify parameters that they could not analyze by a 40 CFR 136 method.

- The contracted laboratory was awarded Bayway's sample analysis requirements taking into account their experience, capacity and capability with multiple affiliated laboratories to draw upon across the country if needed.

- After bid award, Bayway identified the regulatory program on the contracted laboratory chain of custody forms used to transfer NJPDES compliance samples to the laboratory as NJPDES.

- NJPDES NJ0001511 Part IV, Section A.1.b. states "The Permittee shall perform all water/wastewater analyses in accordance with the analytical test procedures specified in 40 CFR 136 unless other test procedures have been approved by the Department in writing or as otherwise specified in the permit." The contracted laboratory confirmed that it was NJDEP certified for the compliance sample methods that were run.

Going forward, Bayway will ensure that only 40 CFR 136 methods are used unless other methods are approved by NJDEP in writing. However, Bayway believes the data is still representative and that the discharges were in compliance with the permit for the following reasons:

- Data by the contracted laboratory has been consistent with data from prior NJDEP certified contracted laboratories using 40 CFR 136 methods

- The contracted laboratory is NELAP certified and all compliance samples were analyzed using NJDEP certified methods

- NJPDES NJ0001511 only requires monitoring for parameters at DSN 003A, 004A and 005A, with no permit limits. Many of the specified parameters are not used at Bayway and are not expected to be present as supported by the data (e.g., pesticides).

- Specific to hexavalent chromium, Bayway always has total chromium analyzed concurrent with hexavalent chromium because the total chromium test is a more sensitive method with a lower detection level than the hexavalent chromium test method. Since hexavalent chromium can only be a fraction of total chromium, hexavalent chromium must always be lower than the quantified total chromium result. Specific to DSN 002A, a review of data from the past three years indicated that total chromium is typically below detection with associated total chromium loads being below the hexavalent chromium permit limit loads.

The contracted laboratory identified 40 CFR 136 methods for which they are NJDEP certified that could be run for NJPDES compliance samples starting in March 2019. As such, as of March, all NJPDES compliance samples have been analyzed using 40 CFR 136 methods for which the contracted laboratory is NJDEP certified. In the event that the contracted laboratory is not certified by NJDEP to analyze a specific NJPDES parameter using a 40 CFR 136 method in the future, the analysis will be subcontracted to a laboratory that is.

Finding/Area of Concern 9.b.: Also pertaining to mercury analysis, no preservative was listed in the chain of custody for Mercury.

Response: Mercury samples were preserved with nitric acid as the analyses were completed using aliquots from the sample bottle preserved with nitric acid that was used for the other metals analyses. The chain of custody shows one bottle containing nitric acid for metals analysis, with mercury shown to be analyzed from that bottle but mercury was listed separately from the other metals because the mercury analysis method is different. For clarity going forward, Bayway revised completion of the chain of custody to now also show that the mercury sample contains nitric acid preservative. Nitric acid is the specified preservative for analysis by 40 CFR 136 EPA Method 245.1, which is sufficiently sensitive to meet the permit's Total Mercury RQL (Recommended Quantitation Level) of 1.0 microgram per liter.

Finding/Area of Concern 9.c.: The chain of custody for BOD did not note that sample was preserved with ice. BOD samples must be kept below or equal to 6 degrees C.

Response: DSN 002A BOD composite samples are collected in a refrigerated composite sampler and maintained in a lab refrigerator until transfer to the contracted lab. The sampler and lab refrigerator were observed by NJDEP and USEPA during the inspection. The refrigerators are checked routinely and maintained as needed to keep samples less than or equal to six degrees C in accordance with 40 CFR 136. A contracted lab is used for the BOD analysis and their courier picks up and transports the samples in a cooler to the contracted laboratory. We note that the contracted lab records the cooler temperature on their chain of custody upon sample receipt at the lab. However, for clarity going forward, Bayway added the requirement to keep samples at or below 6 degrees C to all chain of custodies for samples being transported to the contracted lab.

Finding/Area of Concern 9.d.: The contract laboratory has a standard practice to dilute its wastewater samples by a factor of 5. Given that metals concentrations were at or near the MDL,

the contract laboratory should evaluate whether it is appropriate to dilute the metals at Outfalls 003, 004 and 005.

Response: The contracted laboratory report for metals analyses typically includes the following statement: "As a standard practice all non-potable samples and related QC samples (i.e., MB, LCS, Dup, NS, SD) are diluted 5X prior to analysis. Further dilutions may be required dependent upon analyte levels in the samples. Refer to the analytical results forms for dilutions." This level of dilution still provides sample results that demonstrate compliance with NJ0001511 permit load limit requirements and reporting levels. Even so, we forwarded this USEPA Finding/Area of Concern to the contracted laboratory. The contracted laboratory responded that the dilutions are performed to reduce matrix interference per Standard Operating Procedures.

Finding/Area of Concern 9.e.: The loadings reported in the DMR included a hexavalent chromium data point that was out of holding time. This data point would typically not be included in the calculations.

Response: DSN 002A is required to be analyzed at least once per month for hexavalent chromium. Because of the 24 hour hold time for hexavalent chromium, Bayway schedules a sample pickup for hexavalent chromium on the day that the sample is available and schedules same day analysis for the sample as noted on the chain of custody form. For the August 1, 2018 hexavalent chromium composite sample, the sample was picked up on time but inadvertently not analyzed by the contracted laboratory until the next day at which point the contracted laboratory noted that the sample was out of hold. In response, arrangements were made for another hexavalent chromium sample analysis which was analyzed within the maximum hold time meeting the monthly testing requirement and resulting in two hexavalent chromium sample analyses for the month. Bayway conservatively reported the out of hold hexavalent chromium result based on 40 CFR 122.41 which states all results should be reported, noting that 40 CFR 136.3 includes text that states "In the event of a conflict between the reporting requirements of 40 CFR parts 122 and 125 and any reporting requirements associated with the methods listed in these tables, the provisions of 40 CFR parts 122 and 125 are controlling and will determine a permittee's reporting requirements." Considering this, Bayway noted on the DMR that two samples were collected and added the comment that the second sample was analyzed to meet hold time. Both results were similarly below detection and well below the permit limits. Based on USEPA's comment, Bayway will exclude the results of invalid sample analyses from future calculations.

Finding/Area of Concern 9.f.: The August 2018 lead result for 002 was reported in the DMR as <0.015 mg/L. The loading (kg/day) entry does appear to be based upon a concentration of 1.5 ug/L (0.0015 mg/L).

Response: The laboratory reported the DSN 002A total lead result as 1.3 J ug/l, which is an estimated result below the 1.5 ug/l reporting level. In accordance with NJDEP's DMR Reporting Manual, the total lead concentration for DSN 002A should have been reported as < 0.0015 mg/l. The August 2018 DSN 002A DMR total lead concentration was inadvertently entered as <0.015 mg/l. The total lead loading was input correctly as <0.05 kg/d well below the permit limits based on the actual total lead concentration of <0.0015 mg/l. In response, the NJ0001511 DSN 002A August 2018 DMR was resubmitted in March 2020 correcting the total lead concentration from <0.015 mg/l to <0.0015 mg/l. NJ0001511 DSN 002A only has permit limits for the total lead load with reporting only required for the total lead concentration.

Finding/Area of Concern 9.k.: There are days with stormwater flow through the WWTP when there was no rain. Explain the methodology for determining storm water flow including the storm water flow on dates when there is no rainfall – such as draining tank dikes.

Response: In accordance with NPDES rules, NJPDES Permit NJ0001511 allows a calculated adjustment of the DSN 002A effluent load for parameters with a stormwater allocation based on daily stormwater flow through the WWTP. Bayway Refinery calculates stormwater flow through the WWTP based on a method that was submitted to and accepted by NJDEP. The method takes into account DSN 002A flow and detained stormwater volume changes resulting from and following rain events. Because detained stormwater typically will not be treated through the WWTP until after rain ends, DSN 002A can include stormwater flow on dry days. For example, during a heavy rain, DSN 002A flow can increase with additional flow pumped into a stormwater detention tank. When the rain passes and runoff through the WWTP subsides, detained stormwater flow can be returned for treatment and discharge through the WWTP. The DSN002A flow increase during rain is calculated and depending on the amount of rain that fell and the rate that the detained stormwater is returned, stormwater flow through the WWTP can be calculated to continue for days after rain ends. Even though the stormwater allowances are used in accordance with the permit, we note that Bayway operates the WWTP with the intent of controlling the gross effluent loads for the stormwater adjusted parameters below the effluent adjusted permit limits.

Finding/Area of Concern 16.a.: For internal chain of custody sheets, explain the date August 23, 2018 as the relinquished date for samples collected on August 28 and 29, 2018.

Response: The Bayway Refinery WWTP lab prepares sample bottles and chain of custody forms weekly for compliance samples to be collected the following week. When the bottles and forms are ready, the lab technician preparing the bottles and forms signs or initials the forms at the first "Relinquished By:" space. The bottles and forms are then stored secure within the Bayway Refinery WWTP lab until they are picked up for use, at which time the person picking up the bottles and forms signs or initials the first "Received By:" space. The sample bottle and form pickup by an operator is routinely done the day before or of the sampling day, which can be days after the bottles and forms were initially prepared. In response to this comment, Bayway has revised our internal chain of custody forms to change the first "Relinquished By:" to "Prepared By:".

Finding/Area of Concern 16.b.: Many of the August 2018 internal chain of custody sheets for composite samples at Outfall 002 do not identify that the samples are refrigerated.

Response: As USEPA and NJDEP observed during their inspections, Bayway operates refrigerated composite samplers where composite samples are required for compliance samples. The refrigerators are checked routinely and maintained as needed to keep samples less than or equal to six degrees C in accordance with 40 CFR 136. It is the operator's responsibility to complete the chain of custody form completely. This requirement was reviewed with operators responsible for composite sample collection and transfer to ensure proper documentation going forward.

C. Other Observations for Permit NJ0001511

USEPA listed 10 observations that Bayway interpreted as not requiring written responses based on USEPA's letter specifically only requiring written responses to each PNC Item and AOC. As such, no written responses are provided to the first nine observations. However, we are correcting what appears to be a misunderstanding for Observation 10 which states that the East

Side Retention Basin has been closed and is no longer in use. Bayway had two facilities with similar names, the East Retention Basin and the East Side Retention Basin. The East Retention Basin was removed from service and is no longer in use; the former East Retention Basin location was observed during the inspection. The East Side Retention Basin listed in NJPDES NJ0001511 Part IV.G.4 remains in use. It receives stormwater and process wastewater from Bayway's East Side Chemical Plant facilities, from where the water is pumped to the wastewater treatment plant process sewer. We confirm that consistent with NJ0001511 Part IV.G.4, the East Side Retention Basin only discharges to the Bayway WWTP and not to Railroad Avenue Ditch.

III. Individual Stormwater Permit (NJ0026671)

A. Outfall Observations (NJ0026671) Including PNCs and AOCs seen at outfalls

No response is included for USEPA III.A Line No. 6 which was an observation that was not identified as a PNC or AOC. Consistent with USEPA's letter, following are written responses to the six line items that were identified as a PNC or AOC.

Line No. 1, Outfall 006A AOC: Need to sweep sediment accumulated on Brunswick Avenue by Oil Movements Control Center.

Response: This USEPA AOC was previously addressed in response to NJDEP comments found at Attachment 2 Response to Deficiency #8 which addresses street sweeping frequency and TSS results. In summary, we note that Bayway already does more street sweeping than is required by NJ0026671 and will be further addressing TSS control requirements along Brunswick Avenue with NJDEP during the next permit renewal.

Line No. 2, Outfall 011A AOC: Need to clean litter and debris on catch basin grate draining Brunswick Avenue to onsite reservoirs.

Response: This outfall is located along a section of Brunswick Avenue which is tree lined. We note that the photographed debris consists primarily of vegetation with some plastic litter mixed in. We also note that this section of Brunswick Avenue is tree lined and adjacent to a residential/public area and is thus routinely exposed to vegetative debris such as twigs, leaves, seeds, pollen and acorns, as well as some other windblown litter that originates from offsite. Wind and runoff carry the debris to the catch basins that drain to the onsite reservoir and the debris gets caught and builds up on the catch basin grates. We further note that these and many other trees that are a source of this type of vegetative debris are also in close proximity to the onsite reservoirs where most of the same type of debris falls directly. Even so, Bayway initiated a monthly effort in March to remove debris buildup from these catch basins and will continue to do so on a monthly basis when needed and weather permitting.

Line No. 3, Outfall 017A AOC – Valve Head: Valve Head on one of the two 40 Acre Tankfield Separator outlet valves was broken.

Response: This USEPA AOC was previously addressed in response to NJDEP comments found at Attachment 2 Response to Deficiency #6 & 11. Even though the valve is operational without the hand wheel if needed, the response includes plans to reattach the hand wheel which was removed for shop work that is needed to allow it to be reattached. The reinstallation of the hand wheel may not occur until third quarter 2020 based on reductions in onsite manning made in accordance with NJ Governor Phil Murphy's Executive Order No. 107, which requires

essential businesses remaining open during the coronavirus pandemic to "make best efforts to reduce staff on site to the minimal number necessary to ensure that essential operations can continue".

Line No. 4, Outfall 018A AOC - Sign: Rahway River Tankfield East Separator outfall labeled as 015 and not 018. Verify that outfall signs are accurate.

Response: USEPA is correct in that the outfall 018A sign contained a printing error that was not previously identified. The sign was corrected by changing the 015 to 018. No errors were observed on other outfall signs.

Line No. 5, Outfall 010 PNC: Proper operation and maintenance of the Tremley separator (a Best Management Practice) is required and Operators should be trained to identify oil in the outlet box as well as a layer of oil in the separator itself that necessitates cleaning of the Separator. NJDEP has requested monitoring of the discharges from this outfall consistent with other stormwater outfalls.

Response: The USEPA PNC issues were previously addressed in response to NJDEP comments included at Attachment 2 Response to Deficiency #3 & 11, which included the following actions:

- Initiation of quarterly monitoring of the separator outlet per NJDEP direction
- Increasing separator skimming frequency until visible floating oil is gone
- Maintaining absorbents within the separator outlet at least weekly
- Plans to address oil staining on basin banks and walls during warmer weather

In addition to the above actions, to complete the response to USEPA's PNC, the supervisor responsible for the Tremley Tankfield separator reviewed USEPA's comment with the operators and explained the importance of checking for and documenting the presence of floating oil in the outlet and the separator.

Since the submittal of the response to NJDEP's inspection report, a second set of quarterly stormwater discharge samples was collected from the outlet box and analyzed. Following are the two sets of results to date for reference.

Parameter	Units	January 27, 2020	March 13, 2020
pH	S.U.	7.54	7.27
TOC	mg/l	3.4	5.0
TSS	mg/l	14	16
TPH	mg/l	<1.7	<1.7

Also, a BTEX analysis of a March 13, 2020 sample of the contents within the Tremley Separator had no detected values with a 1 ug/l reporting level for Benzene, Toluene and Ethylbenzene and 2 ug/l for Total Xylenes.

We also add that Bayway's response to NJDEP's NJPDES NJ0105104 inspection comments pertaining to the Tremley Separator is included in Attachment 3: Response to Deficiency #1 & 2. Bayway's response further addresses floating oil within the separator, separator operation and maintenance BMPs, and verifies that the most current site remediation groundwater data does not show any impact to groundwater quality associated with operation of the Tremley Separator.

Line No. 8, Outfall 009 AOC: Need to provide protocols for sampling the butane sphere containment area outlet pipe during high tide.

Response: The butane sphere containment area outfall pipe discharges into Morses Creek. For the majority of the time, the discharge pipe is located above the creek level and the bottles can be filled directly from the discharge pipe. During spring high tides, the creek level can rise such that the outlet pipe can be partly or fully submerged until the high tide recedes. Operators do not sample the discharge during spring high tide periods because the outlet pipe also becomes physically inaccessible without the operator standing in the raised creek water. A comparison of the historic discharged stormwater data with typical creek water quality supports that this has not occurred. The stormwater sampling procedure for the butane sphere containment area also already specifically states that only stormwater should be collected in the sample bottles. However, to ensure representative stormwater sample results are always collected, the stormwater sampling procedure for the butane sphere containment areas was revised to also indicate that stormwater samples should not be collected if the outlet pipe is not accessible or if other water can get into the sample bottle, such as during high creek levels. In the event of high creek water level, the procedure recommends delaying the start of discharge and sampling which is possible because the discharge is controlled by the operator conducting the sampling.

B. Potential Noncompliance Items

1. The Tank 519 Waste Management Area was not being operated or maintained in accordance with the permit.

Response: USEPA PNC issues that were previously addressed in response to NJDEP comments include the Attachment 2 Response to Deficiency #1, 2, 5 & 11, which included improvements to the SPP Plan roll-off management BMPS, waste management BMPs and waste management area inspection follow-up and documentation that are in place.

C. Areas of Concern

1. Permit NJ0026671 expired on May 31, 2012 and has not been renewed.

Response: NJPDES Permit NJ0026671 expired but remains in effect because NJDEP advised that the permit renewal application was administratively complete. Subsequently NJDEP stormwater NJPDES permit writers visited the site as part of the permit renewal process but as USEPA notes, the permit has not yet been renewed. There is no further action required by Bayway at this point.

2.a. Unstabilized soil in the Rail Car Unloading area.

Response: This USEPA AOC was forwarded to the supervisor responsible for the area who had the bare earth areas stabilized with stone cover.

2.b. The Facility must cease overflows from the Rail Car Unloading area manhole.

Response: This USEPA AOC was addressed in response to NJDEP comments found at Attachment 2 in Response to Deficiency #4, which described that the manhole has been raised above the containment area it drains, eliminating the chance of another manhole overflow. A photograph of the raised manhole was provided to NJDEP in 2019 to document that the work was complete.

3. Outfall 018A's sign says 015A. Outfalls must be properly labelled. Additionally, the separator valves remain open at this unmanned separator. Verify the inspection frequency of this and other separators to ensure that spills would be noticed in a timely manner to avoid discharges through open valves.

Response: The outfall sign number AOC is a repeat of USEPA AOC III.B. Line No. 4, in response to which Bayway advised that the sign printing error was corrected from 015A to 018A. Regarding the "open separator valves", the discharge valves for the separator were actually closed. A description of the facility operation and separator design follows to explain the separator operation. First, the Rahway River Tankfield is not continually manned. It is checked at least once every twelve hour shift by a tankfield operator and up to three times per shift by the same operator depending on other work requirements that shift. The separator actually has two sets of two redundant valves. There are two discharge valves near the bottom of the separator which are normally closed and operated by the tankfield operator as necessary to detain or discharge stormwater. The discharge valve pipes have downturned elbows on the inlet side extending to near the separator bottom to prevent oil from entering the discharge pipe when one or both valves are opened to discharge stormwater. Because the tankfield is not always manned, and the discharge valves may not be opened until after rain passes to ensure that there is no oil within the separator before opening a discharge valve, a second set of two redundant valves with downturned elbows on the inlet side were also installed at a much higher level just below the top of the basin. The downturned elbows on the elevated pipes extend to near the bottom of the basin similarly to the discharge pipes to prevent oil from entering the pipes. The elevated pipes are normally open so that in the event of a large rain event while the tankfield is unmanned and the discharge valves are closed, the separator will not overflow and potentially release oil. Rather, the elevated pipes and downturned elbows ensure that there can not be an overtopping of the separator and eliminate the risk of a potential oil release. Valves were installed on the elevated pipes to provide flexibility to increase basin capacity in the event of a large oil leak into the separator, increasing ability to contain the oil. This design provides the highest level of protection from a potential oil release while the tankfield is unmanned.

4. Additive tote containment in the Rahway River Tankfield was not effective.

Response: This USEPA AOC was addressed in response to NJDEP comments found at Attachment 2 Response to Deficiency #9, which includes plans for operator responsibility refresher training.

5. Evaluate the source of the water puddling near the hazardous waste staging area drain valve outlets and eliminate if necessary any leakage through the dike.

Response: The hazardous waste containment pad has two valved drains that have both been locked closed with blank flanges bolted to their outlet flanges for years. These valves are not operated and do not leak, and the concrete containment is functioning properly. The photographed water puddled on the outside of the pad underneath one valve was water ponded against the curb from rain and was not from a leak or discharge. The pad holds water which periodically has to be removed by vacuum truck because there is no active drain or sewer. The pad is included within the weekly waste management area inspections. In the event that a leak was observed during an inspection, it would be repaired.

6. There was an open waste dumpster in the Exxon Storage area and there were also drums stored in this area without secondary containment.

Response: This USEPA Area of Concern was forwarded to ExxonMobil, who provided the following response (unedited in quotes):

"The roll off was being loaded earlier in the day and was left open during the morning break. The P66 roll off management requirements were reviewed by the ExxonMobil Site Remediation Team on March 3, 2020. Roll offs will be covered when not actively being loaded with waste material.

The drums in photos 736 and 737 were empty drums that previously contained non-hazardous characteristic waste prior to being emptied so secondary containment is not required."

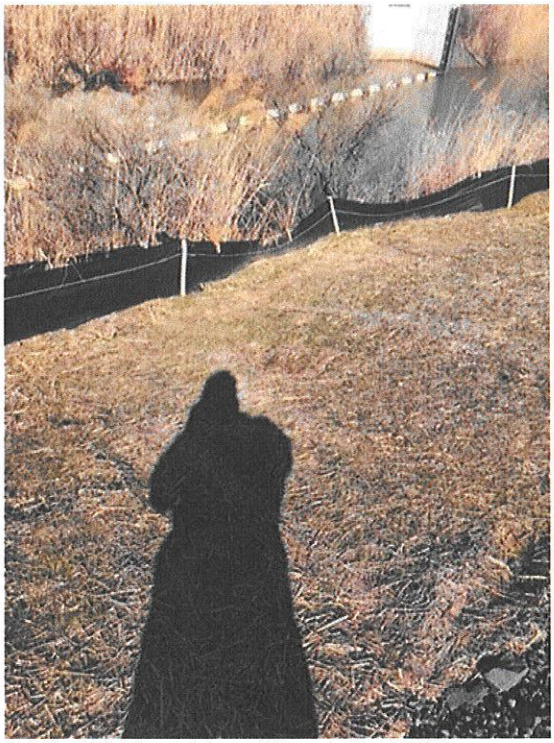
Bayway adds that the P66 roll-off management requirements referred to by ExxonMobil were the updated roll-off management procedures developed in response to NJDEP inspection comments that is included in Attachment 2: Response to Deficiency #1 and 11, which included reviewing the updated roll-off management procedures with ExxonMobil during the February 25, 2020 SPP Plan BMP meeting.

7. The Exxon RCRA area had large amounts of unstabilized soils. There was some erosion seen near the silt fencing. Explain whether this area has been stabilized.

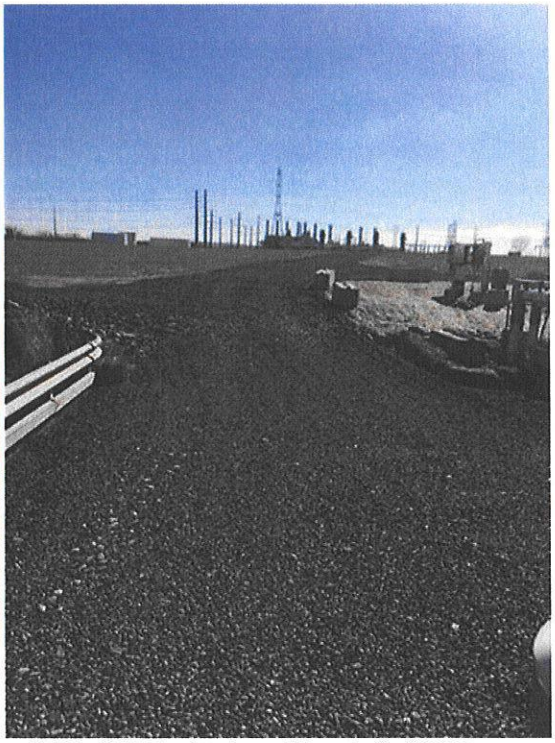
Response: This USEPA Area of Concern was forwarded to ExxonMobil, who provided the following response and photographs (unedited in quotes):

"Although the exact locations of images DSCN6754 and 6755 cannot be discerned from the photographs, it is believed they are in the proximal location of attached photograph IMG_3757 taken on March 6, 2020. At the time when DSCN6754 and 6755 were taken, the area was still undergoing construction activities associated with SRP approved remedies. Subsequent to the photograph taken in June 2019, final grading was performed, erosion control matting installed and the area seeded. See photographs below for comparison.

We also note that the observed site remediation work and photographed areas were covered by ExxonMobil's NJPDES Individual Stormwater Permit Authorization for Construction Activity and the associated Stormwater Pollution Prevention Plan and certified Soil Erosion and Sediment Control Plan."



IMG_3757 – Taken March 3, 2020



IMG_3755 – Taken March 3, 2020

8. EPA and NJDEP inquired whether there was a refinery program for valve maintenance.

Response: This USEPA AOC was previously addressed in response to NJDEP comments found at Attachment 2 Response to Deficiency #6 and 11, which explained how the refinery maintains and operates containment valves and why Bayway believes its practices and procedures are proper for containment valves relied upon to prevent environmental impacts.

9. For Linden Terminal, address the uncovered soil pile, verify whether the loading rack O/W separator is routinely inspected, advise which outfall receives the loading rack O/W separator flow, and address SPP Plan requirement for road repair BMP.

Response: The entire truck loading rack area within the Linden Terminal is contained and can only drain to the refinery WWTP sewer, either directly or through the truck rack oil-water separator. There are no stormwater sewers in the area. The actual truck loading rack area drains to the oil water separator, from where it is pumped to the refinery either manually (e.g., during routine operator checks) or automatically on level control (e.g., during heavy rain). As stated by USEPA, the excess soil pile observed on the edge of the general truck loading area was associated with ongoing concrete paving work at the time. It was soil that did not fit on a prior truckload and was left uncovered because it was waiting for removal. The area it was located in could only drain to the refinery WWTP sewer in the event of rain before it was removed (i.e., runoff from the soil could not flow directly to a surface water). The concrete paving project was implemented to ensure safe driving conditions within the truck loading rack area and was being managed consistent with the SPP Plan requirement to address paving and access road repairs with the potential to erode or discharge solids to surface waters. Note that Bayway's response to NJDEP's comments found at Attachment 2, CEI Checklist Item on Page 6 of 11 address the addition of a road maintenance BMP to the SPP Plan. The paving work has now been completed and all excess soil removed.

The separator includes a level switch which will activate pumping if left on automatic control. The system can also be operated manually. The truck loading rack is inspected at least daily by the Linden Terminal operators for oil and water content, who then arrange for oil recovery if present and start pumping water to the refinery WWTP sewer if needed. During heavy rain, the separator can start pumping on automated control as well to prevent an overflow. The truck loading rack oil-water separator is also checked nightly by a terminal technician.

10. Report operational status of the Greater Elizabeth Tankfield pump.

Response: The pump that USEPA is referring to is the same diesel pump that was previously discussed in response to USEPA Area of Concern II.B.8.b which was referred to as being located at Infineum's process sewer. Please see the prior response to AOC II.B.8.b.

TABLE 1: ACTION PLAN FOR USEPA PNC ITEMS & AOCS

USEPA Ref. No.	NJDEP Cross Ref.	PNC/AOC Summary	Action Taken/Planned	Action Status
II. A. Line No. 2, Outfall 001		AOC: Oil and Grease (O&G) samples must be collected directly into sample container.	Operator O&G sample collection refresher training.	Completed
II. A. Line No. 3, Outfall 005	Att. 1, Def. 1 & NOV Actions 1 & 2; Att. 2 Def. 5 & 11	PNC A., B. & C: Polypropylene Pellet Control. Improve plastic residual containment.	Removed separator air system. Installed cover over separator outlet. Removed buildup on separator walls. N licensed operator oversight started. Submitted pellet separator O&M Manual to NJDEP for review. Trial cover for in-use roll-off loading. Purchased manual vacuum. Reviewed rerouting separator to process sewer (not recommended). Evaluate baghouse exhaust area screens.	Completed Completed Completed Completed Completed Ongoing Completed Completed Ongoing (6)
II. A. Line No. 3, Outfall 005		Comment e.: Open container with waste material should be covered.	Container was removed.	Completed
II. A. Line No. 4, Outfall 004	Att. 1, Def. 2	Finding/AOC: BMPs required for collection and removal of material at Outfall 004 during and after Clam-Trol application	Added BMPs to SPP Plan and revised contractor procedure for planning biocide application to include vacuum truck needs.	Completed
II.B.1.		Finding/AOC: Provide status of API Separators.	Planned work completed & API separator facilities back in service.	Completed
II.B.2.	Att. 1, Def. 3. a.	Finding/AOC: Provide status of Tank 132 and 133 dike valve. Clean/remove oil in tank dike.	Containment valve installation now being planned for 3Q20, conditions permitting. Containment area was cleaned	3Q20 Target (6). Completed
II.B.3.a.		Finding/AOC: Array of temporary pipes for RAS and Bi-Ox lagoons.	Some temporary equipment has been removed; some remains for use until upgrade work is completed by 3Q20.	3Q20 Target (6).
II.B.3.b.		Finding/AOC: Eroded section of lagoon berm must be stabilized. Install permanent RAS lines.	Bank erosion repair now planned for 3Q20, conditions permitting. Existing RAS pipe is intact & in use.	3Q20 Target (6). Completed
II.B.3.c.		Finding/AOC: Bi-Ox foam & floating solids build-up.	Existing foam/scum control facilities are in use. No further action planned.	Completed
II.B.3.d.		Finding/AOC: Explain status of new RAS pumps.	New pumps in service; some remaining project work ongoing.	3Q20 Target (6).
II.B.3.e.		Finding/AOC: East Bi-Ox DO (dissolved oxygen) probe read 0.0.	DO probe was addressed & returned to service with reliability improved.	Completed
II.B.3.f.		Finding/AOC: Explain status of aerator upgrades.	Ongoing installation of 4 new aerators will complete upgrade work.	3Q20 Target (6).
II.B.4.a.		Finding/AOC: Replace missing Clarifier No. 1 weir plate.	Plate installed across weir opening until permanent repair during next clarifier turnaround.	Completed
II.B.4.b.		Finding/AOC: Explain status of clarifiers.	Planned work completed and all 3 clarifiers are in service.	Completed
II.B.5.a.		Finding/AOC: Explain status of tertiary filters.	All filters returned to service in 2019. Another filter removed from service in 2020 for planned maintenance.	Completed
II.B.5.b.		Finding/AOC: Broken water line puddling outside filter building.	Broken line repaired by water company in 2019.	Completed
II.B.5.c.		Finding/AOC: Provide status of filter gate valve replacement.	Butterfly valves working well; replacing gate valves as needed.	Completed

USEPA Ref. No.	NJDEP Cross Ref.	PNC/AOC Summary	Action Taken/Planned	Action Status
II.B.6.		Finding/AOC: Unstabliized soils along onsite reservoir.	Application started for NJDEP flood zone permit needed for stone cover.	Year End Target (6)
II.B.7.a.	Att. 1, Def. 2.	Finding/AOC: Require BMPs for collection and removal of material during & after biocide use.	Added BMPs to SPP Plan & revised biocide application planning procedure to include vacuum trucks.	Completed
II.B.7.b.		Finding/AOC: Influent oil and grease (O&G) sampling.	Operator O&G sample collection refresher training.	Completed
II.B.7.c.		Finding/AOC: Confirm status of CWA Section 316(b) compliance.	Confirmed CWA Section 316(b) to be addressed during permit renewal.	Completed
II.B.7.d.		Finding/AOC: Verify BPC 68940 & Clam-Trol are similar.	Water treatment contractor verified BPC 68940 & Clam-Trol are similar.	Completed
II.B.7.e.		Finding/AOC: Dispose of debris in open container outside Salt Water Pump Station.	Parts stored on pallet outside Salt Water Pump Station were removed & debris disposed of properly.	Completed
II.B.8.a.	Att. 1, Def. 2	Finding/AOC: Control ISOM Unit sewer overflow.	Sewer foam-over due to biocide application addressed at USEPA Ref. Nos. II.A. Line No. 4 & II.B.7.a.	Completed
II.B.8.b.	Att. 1, Def. 3. d.	Finding/AOC: Infineum process sewers must be controlled to avoid overflows.	Explained pump location & function; advised plans to install permanent pump to control ponding in culvert.	3Q20 Target (6)
II.B.8.c.		Finding/AOC: Verify source of flow entering area near diesel pump.	Source was confirmed to be continuing runoff from rain.	Completed
II.B.9.a., b., g., h., i. & j.		Finding/AOC: 40 CFR 136 method not used to analyze the following: • Hexavalent chromium • Mercury • Bis(2-ethylhexyl)phthalate • Semi-volatiles (SVOCs) • Pesticides • Mirex	All samples as of March have been analyzed using 40 CFR 136 methods by a NJDEP certified lab. First SVOC & Bis (2-ethylhexyl) phthalate samples to be analyzed in April. First pesticides & Mirex samples to be analyzed in July.	Ongoing (6).
II.B.9.b.		Finding/AOC: Chain of custody did not list preservative for Outfall 003, 004 & 005 mercury samples.	Chain of custody updated to show preservative used for mercury samples.	Completed
II.B.9.c.		Finding/AOC: Chain of custody for BOD did not note cooling samples to </= 6 C.	Chain of custody updated to show cooling to </= 6 C for all samples transferred to contracted laboratory.	Completed
II.B.9.d.		Finding/AOC: Laboratory should evaluate need to dilute metals samples.	Laboratory confirmed dilution of non-potable water samples is SOP to reduce matrix interference.	Completed
II.B.9.e.		Finding/AOC: Exclude from calculations data from analysis that exceeded sample hold time.	Per USEPA comment, future calculations may exclude sample results exceeding hold time.	Completed
II.B.9.f.		Finding/AOC: August 2018 Outfall 002 total lead concentration appeared to be incorrect.	Data entry error confirmed and corrected with submission of corrected August 2018 DMR.	Completed
II.B.9.k.		Finding/AOC: Explain methodology for determining stormwater flow, including dates when there is no rainfall.	Explained that NJDEP approved stormwater calculation method can have stormwater flow through WWTP from retention tanks after rain ends.	Completed
II.B.16.a.		Finding/AOC: Explain initial sample relinquished date on internal chain of custody.	Explained initial date is sample container preparation date; revised chain of custody wording for clarity.	Completed
II.B.16.b.		Finding/AOC: Outfall 002 chain of custody missing composite refrigerator temperature.	Operator refresher training covered including composite refrigerator temperature on chain of custody.	Completed
II.C.10.		Observation: East Side Retention Basin listed in NJ0001511 Part IV.G.4 is no longer used.	Corrected to indicate East Retention Basin, and not East Side Retention Basin, was removed from service.	Completed

USEPA Ref. No.	NJDEP Cross Ref.	PNC/AOC Summary	Action Taken/Planned	Action Status
III. A. Line No. 1, Outfall 006A	Att. 2, Def. 8	AOC: Need to sweep roadside of accumulated sediment.	Street sweeping more frequently than required by permit. Proposed possible 1 year haybale trial to NJDEP for data collection.	Completed Awaiting Response.
III. A. Line No. 2, Outfall 011A		AOC: Need to clean debris and litter on catch basin grate.	Initiated monthly debris removal from catch basins along tree lined portion of Brunswick Avenue.	Completed
III. A. Line No. 3, Outfall 017A	Att. 2, Def. 6 & 11	AOC: Valve wheel on one of two discharge valves is detached.	Valve wheel removed for shop work. Valve operable with wrench.	3Q20 Target (6).
III. A. Line No. 4, Outfall 018A		AOC: Outfall identified as 015 and not 018 on sign.	015 corrected to 018 on sign.	Completed
III. A. Line No. 5, Outfall 010A	Att. 2, Def. 3 & 11 Att. 3, Def. 1 & 2	PNC: BMPs for operation and maintenance of Tremley Separator are required. Operators should be trained to identify oil in outlet box & basin. Initiate outlet monitoring per NJDEP request.	Increased basin skimming & set weekly outlet absorbent management. Operator inspection refresher training. Cleaning of oil stained banks & walls, & trial oil skimmer use in basin planned to start May. Quarterly monitoring outlet since Jan. 2020.	Ongoing. Completed 2Q20 Target (6). Completed
III. A. Line No. 8, Outfall 009A		AOC: Need protocol to sample during high tide.	Revised sampling procedure to address high tide conditions.	Completed
III. B.1.	Att. 2, Def. 1, 2, 5 & 11	PNC: Use BMPs for proper waste management in Tank 519 Waste Management Area.	Updated site SPP Plan roll-off BMPs. Reviewed waste management BMPs with contractors & others covered by permit. Cleaned up spilled material. Improved weekly waste management area inspections & documentation. Removed damaged roll-offs and replaced damaged/missing tarps. Removed abrasives, resin & bins. See also response to USEPA Ref. No. II. A. Line No. 3, Outfall 005.	Completed
III. C.1.		AOC: NJPDES NJ0026671 expired and has not been renewed.	Permit remains in effect while NJDEP works draft permit. NJDEP initiated renewal process with site visits by permit writers.	NJDEP action item.
III. C. 2. a.		AOC: Unstabilized soils at rail car unloading area.	Identified areas were stabilized with stone cover.	Completed
III. C. 2. b.	Att. 2, Def. 4	AOC: Manhole in rail car unloading area overflowed.	Raised manhole to prevent overflow.	Completed
III. C. 3.		AOC: Outfall 018A sign says 015A. Separator valves open. Verify inspection frequency of separator(s).	015A changed to 018 A; see also response to USEPA Ref. No. III. A. Line No. 4, Outfall 018A. Explained separator operation & operator inspection frequency.	Completed
III. C. 4.	Att. 2, Def. 9	AOC: Containment for totes was fallen down.	Operator responsibility refresher training planned.	2Q20 Target.
III. C. 5.		AOC: Water puddled outside hazardous waste containment pad.	Containment pad and valves confirmed to be intact.	Completed

USEPA Ref. No.	NJDEP Cross Ref.	PNC/AOC Summary	Action Taken/Planned	Action Status
III. C. 6.		AOC: Open waste dumpster in Exxon storage area.	ExxonMobil updated roll-off management procedures per Bayway response to USEPA Ref. No. III. B. 1.	Completed
III. C. 7.		AOC: Explain whether eroded Exxon RCRA area has been stabilized.	ExxonMobil completed grading, stabilization & seeding in these permitted project areas.	Completed
III. C. 8.	Att. 2, Def. 6 & 11	AOC: Inquiry as to refinery containment valve maintenance program.	Explained refinery containment valve operation & maintenance procedures.	Completed
III. C. 9.	Att. 2, CEI Checklist Item on Page 6 of 11	AOC: Uncovered excess soil pile at Linden truck terminal. Verify loading rack is routinely inspected and which outfall receives separator flow.	Excess soil pile removed. Added road maintenance BMP to SPP Plan. Explained loading rack inspection, operation & discharge location	Completed
III. C. 10.	Att. 1, Def. 3. d.	AOC: Report status of Greater Elizabeth Tankfield culvert pump.	Permanent pump planned to be installed per Bayway response to USEPA Ref. No. II. B. 8. b.	3Q20 Target (6)

Table 1 Notes:

1) PNC: Potential Non-Compliance Item
2) AOC: Area of Concern
3) USEPA Ref. No.: USEPA inspection report numbering system.
4) NJDEP Cross Ref.: Cross reference to Bayway responses to similar items in NJDEP NJPDES inspection reports.
5) Observations included in the inspection report did not require a documented response or action per USEPA transmittal letter.
6) Any schedule included in the Action Status for an ongoing or planned action is based on normal operations within Bayway's control, except that some delays from planned dates previously communicated in responses to NJDEP inspection reports have already been identified due to reductions in onsite manning made in accordance with NJ Governor Phil Murphy's Executive Order No. 107, which requires essential businesses remaining open during the coronavirus pandemic to "make best efforts to reduce staff on site to the minimal number necessary to ensure that essential operations can continue".